

# Immersive Virtual Reality for Tourism and Creative Industry Development

Hendro Trieddiantoro P

*Gadjah Mada University, Indonesia*

Hendro\_trieddiantoro@mail.ugm.ac.id

**Abstract** — The growth of Indonesian tourism and creative industries has been focused on cultural and intellectual property issue. Although, the acceleration of VR development, and the compatibility is worth for tourism researcher and professionals to appreciate. Also, the increasing of an immerse VR technology is accorded with a creative economy, it relies with the concept that mainly using creativity as the main human production factor. The detailed explanation is carried out by discussing certain literature study of the VR application. The substantial step is from analyzing the findings, it is a S.W.O.T analysis of VR application for Indonesian tourism and creative industry development. The research concludes to a wider possibility of using the virtual reality application, that is to promote of Indonesian tourism. Developing a game based on virtual reality application is a great opportunity, it is to enhance the competitiveness of Indonesian tourism on global free trade. Moreover, the detail content of virtual reality game application opens up opportunities in new research focus.

**Keywords** – *Cultural and Intellectual Property Issue, Immersive Virtual Reality, Indonesian Tourism and Creative Industry Development, SWOT Analysis*

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## 1. INTRODUCTION

Our main objective is to clarify about VR application in order to enhance the Indonesian's tourism. This paper discusses the competitiveness of Indonesian's creative industry in the global free trade era. This paper begins with describing the definition of tourism. The research starts to clarify about the tourism in Indonesia.

Moreover, specifically the issue about property right and also the development of VR technology. A more detailed explanation is carried out by the study of literature about the application of VR. The final next step is summarizing the findings from a SWOT analysis. This way is to understand the impact

of utilization VR as the application in Indonesian's tourism and creative industry.

### 1.1. TOURISM AND CREATIVE INDUSTRY

What is tourism? Tourism consists a wide range of focus as it complexity conducted with many sectors, groups, and organization. However, the United Nations Conference on International Travel and Tourism defined Tourism as, "the consumption, production and distribution of services for travelers who dwell in some place other than their domiciles or workplace for at least twenty-four hours. Shorter sojourns are regarded as mere excursions."

Furthermore, tourism and creative industry are can't be separated. There was a linkage

between tourism and creative industry that evolving simultaneously with the technology development in the modern information era. More importantly is the country's creative economy policy play an important role in the growth of creative industries.

## 1.2. VIRTUAL REALITY (VR)

There are many definitions of Virtual Reality, Tzasavari and Tsapatsoulis (2010) explains that:

... virtual Reality is produced by a combination of technologies that are used to visualize and provide interaction with a virtual environment. These environments often depict three-dimensional space which may be realistic or imaginary, macroscopic or microscopic and based on real physical laws of dynamics or on imaginary dynamics. (p. 26)

Moreover Hullinger (2015) in her article about the innovative uses of virtual reality, she said that "Already, VR is being used in innovative ways to make our lives a little bit easier". Virtual reality has been used as a tool for simulation in many fields such as training football players, rehabilitating stroke patients, preparing public speakers, taking jury to a crime scene, not to mention driving simulator, and teaching dental students. As a matter of fact, in architecture VR is being used for visualizing a design concept and simulation of heritage building reconstruction.

## 2. LITERATURE REVIEW

### 2.1. TOURISM AND CREATIVE INDUSTRY IN INDONESIA

Retrieve the information about Indonesian tourism from Wikipedia (n.d), that "Indonesia is a country with kind of tourism destination. The vast country of the sprawling archipelago has much to offer; from natural beauty, a historical heritage to cultural diversity." Furthermore, both nature and culture are major components of Indonesian tourism. The world factbook (2006) describe Indonesian tourism that:

... international tourism campaigns in Indonesia have been focused largely on its

tropical destinations with white sand beaches, blue sky, and cultural attractions. Beach resorts and hotels have been developed in some popular tourist destinations, especially Bali island as the primary destination.

The requisite of tourist in the destination area considers of timely accurate of specific information on the destination area, accessibility, facilities, attractions, and also activities. Tourist's needs are often the key to the successful satisfaction of the Tourism demand. Sambhanthan and Good (2013) point out that:

... tourism is one of the potential foreign exchange earning sectors, which place sustainability as one of the main success metrics for benchmarking the industry's overall development ... enablement of tourists to get access to these destinations is another open question, which could result in the development of new tourism products.

Similar to the sustainable issue is about Indonesian cultural and intellectual property right problem. It is unfortunate that happened in Indonesia is precisely the opposite. During the 2007-2012, as many as 7 culture of Indonesia was claimed by Malaysia. Otherwise, Richard (2012) explains the application of creativity in creative industry, he said that:

... creativity has been used in a number of ways in tourism, including; tourism products and experiences, revitalization of existing products, valorizing cultural and creative assets, providing economic spin-offs for creative development, using creative techniques to enhance the tourism experience, also creating buzz and atmosphere.

### 2.2. VIRTUAL REALITY

There are many definitions of virtual reality, virtual reality is the computer that generates 3D output with a high graphic. The second definition, virtual reality is an interactive 3D world that allow a user to interact it through a computer in real time. The third definition,

virtual reality is a virtual world, which the user can enter it without any medium. Arguably, Steuer (1993) defines that “The definition of virtual reality is based on concepts of “presence” and “telepresence,” which refer to the sense of being in an environment, generated by natural or mediated means, respectively.” (p. 104). Biocca and Levy (1995) discuss about the communication in the age of virtual reality, they said that:

... Immersive is a term that refers to the degree to which a virtual environment submerges the perceptual system of the user in computer-generated stimuli. The more the system captivates senses and blocks out stimuli from the physical world, the more the system is considered immersive.(p. 57)

Mainly it is the 5 of human senses that affect the degree of immersion, it divided into main and sub categories. The explanations retrieved from Wikipedia (n.d), it said that:

... to create a sense of full immersion, the 5 senses (sight, sound, touch, smell, taste) must perceive the digital environment to be physically real. Immersive technology can perceptually fool the senses through panoramic 3D displays (visual), surround sound acoustics (auditory), haptics and force feedback (tactile), smell replication (olfactory), and taste replication (gustation).

...According to Ernest W. Adams (2004), author and consultant on game design, immersion can be separated into three main categories: Tactical immersion, tactical immersion is experienced when performing tactile operations that involve skill. Players feel "in the zone" while perfecting actions that result in success. Strategic immersion, strategic immersion is more cerebral and is associated with the mental challenge. Chess players experience strategic immersion when choosing a correct solution among a

broad array of possibilities. Narrative immersion, narrative immersion occurs when players become invested in a story, and is similar to what is experienced while reading a book or watching a movie.

... Björk and Holopainen, in *Patterns In Game Design* (2004) divide immersion into similar categories but call them sensory-motoric immersion, cognitive immersion and emotional immersion, respectively. In addition to these, they add a new category spatial immersion. Spatial immersion occurs when a player feels the simulated world is perceptually convincing. The player feels that he or she is really "there" and that a simulated world looks and feels "real". (p. 206)

However, there're several disadvantages about virtual reality hardware and software. Eugene (2003) in his article said that:

...the most basic virtual reality hardware and software highlights another of the disadvantages of virtual reality, namely the cost. And yet simulation sickness, or simulator sickness, is a condition where a person exhibits symptoms similar to motion sickness caused by playing computer, simulation, and video games.

A similar explanation by Jimeno and Puerta (2004) about the side effect of the devices, they added, that "headaches and feeling sick are side effects accepted by some manufacturers of devices that provide VR systems as a result of their use."(p. 872)

### **2.3. APPLICATION OF VIRTUAL REALITY**

Firstly, Horan (1996) on his research on Virtual Reality application in the hospitality / tourism industry, said that "different experiences can be created through the use of computer-mediated imaging and graphical environments" (p. 3). This is the sign that the opportunity is wide open simultaneously with

the development of VR hardware. Rubin (2014) on his article explains:

... game development for VR accelerated dramatically. Sony announced its own VR peripheral, known for now only as Project Morpheus. Samsung joined Oculus to develop the Gear VR mobile headset, and Google Cardboard. Hollywood even jumped aboard: Comic-Con International in San Diego saw VR experiences from Sleepy Hollow and Pacific Rim.

Furthermore, Sambhanthan and Good (2013), they proposed a VR model to enhance tourism destination accessibility in developing countries, they proposed:

... the proposed model will enhance the accessibility of tourism destinations to tourists with mobility impairments as well elderly tourists. ... in addition to this, the model could be used as a means to replicate some endangered destinations which are not accessible to human beings. (p. 6-7).

A recent study claims that game animation technology as the possible next innovation in tourism. Tjostheim and Lous (2005) point out that basically game animation is a simulation of a virtual environment with an immersive feature. The user is connected through a medium. On the other hand, Joseph (2009) talks about immersive feature through a medium, he said that:

... an immersive digital environment is an artificial, interactive, computer created scene or "world" within which a user can immerse themselves. ... an immersive digital environment could be a model of reality, but it could also be a complete fantasy user interface or an abstraction, as long as the user of the environment is immersed within it. (p. 249)

The acceleration of VR game developers and its compatibility of VR application have a right to be appreciable from tourism researcher and professionals. The evolve of VR technology

certainly increasing the number of possible applications. Correspond with the conclusion from Guttentag (2010), his research is about VR applications and implications for tourism, he concludes that planning and management, marketing, entertainment, education, accessibility, and heritage preservation are six areas of tourism in which VR may prove particularly valuable.

### **3. SWOT ANALYSIS**

#### **3.1. STRENGTH**

From the review above, we can confirm that VR has been identified as one of the most exciting technological developments in the future. Potentially, observing into this opportunity with the Indonesian tourism, there is lots of possible simulation of VR to develop tourism experience. There will be in accordance with the concept of economic activity that utilizes creativity as one of economic resource. As the objective of the creative economy is to elaborate human resource as a main factor of all production activities. On the other hand, virtual reality can be used as an effort for preserving the Indonesian culture and tourism. Similar with the Sambhanthan and Good (2013) opinion about the development of virtual reality application that based on cultural could be an effort toward the sustainability of cultural and intellectual property rights..

#### **3.2. WEAKNESS**

Many weaknesses appear in the case of hardware product, most likely the problem from using a virtual reality tool is the nausea effect or the simulation effect. Besides that there are the pros and cons about the cost of virtual reality headset that bring to a significant impact on the quality of the experience. Moreover, the complaining about the weight of a VR headset and the design issue that looks like an alien to some people. This is an area that needs attention from virtual reality hardware developer to make a better quality and safety product.

#### **3.3. OPPORTUNITY**

The rapid development of VR technology will compete to serve better quality of the graphic, sound, and interactive user input make with handy and affordable price. Dozen companies that competing such as Google cardboard, Oculus Rift, Samsung VR are started to introduce their consumer version. It is predicted that VR will continue to gradually grow and gain acceptance as a mainstream tool. Identical with Betters (2015) explanations about the available price range of the top VR headsets that worth to checking out.

On the other hand, the application of virtual reality can be used as the attempt to respond the cultural property right issue about Indonesian culture and tourism. Similar with the consideration from Callahan and Opperman (2013), that argued about the proliferation of virtual space. Kelly, Evans, and Dixon (2014) added, that they criticized about Virtual laws in virtual reality, especially in developing a virtual reality game. They consider about the copyright concern that protects all of the content in virtual reality gaming. Law needs to protect the creativity and anticipate the intellectual property, include the imagery and background sound. This could be an opportunity to protect the tangible and intangible of Indonesian culture and tourism. The other opportunity from using virtual reality application for the Indonesian tourism is more to the content. The many of the Indonesian culture and tourism bring to its own opportunity to be developed.

### 3.4. THREAT

The threat about an application of virtual reality for tourism is that immersive could replace the experience from being a tourist. It's an immersive content of virtual environment and the completeness of information would become a problem. When something is not interesting anymore, it will be no curiosity to visit the place.

## 4. RESULT AND DISCUSSION

Firstly, It is possible to utilize the virtual reality application to enhance and promote both nature and culture of Indonesian tourism.

But that must be considered, the purpose of utilizing a Virtual Reality application for tourism development was not to replace the tourist activity, but more to enhance the information, provides the accessibility and preservation of tourism destination. Moreover, the development of virtual reality application that based on cultural could be an effort toward sustainability of cultural and intellectual property rights.

Developing a virtual reality game application for tourism will be in accordance with the concept of a creative economy that focusing on the human resource as the main production factor. This is a great opportunity for Indonesia that has up to 80 game developer to enhance the competitiveness on global free trade. Moreover, the detailed content of virtual reality application and the completeness of information would become another concern that needs to be investigated.

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